

Service Manual

Notebook Computer

CF-28

Supplement-1

TOUGHBOOK

This is the Service Manual for the following areas.

- M ...for U.S.A. and Canada
- E ...for U.K.
- G ...for Germany
- F ...for France
- S ...for Sweden
- T ...for Italy
- P ...for Spain

Applied Model :
CF-28MCFAZxx

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

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Replacement Parts Comparison Table

Note : Important Safety Notice

Components identified by  mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

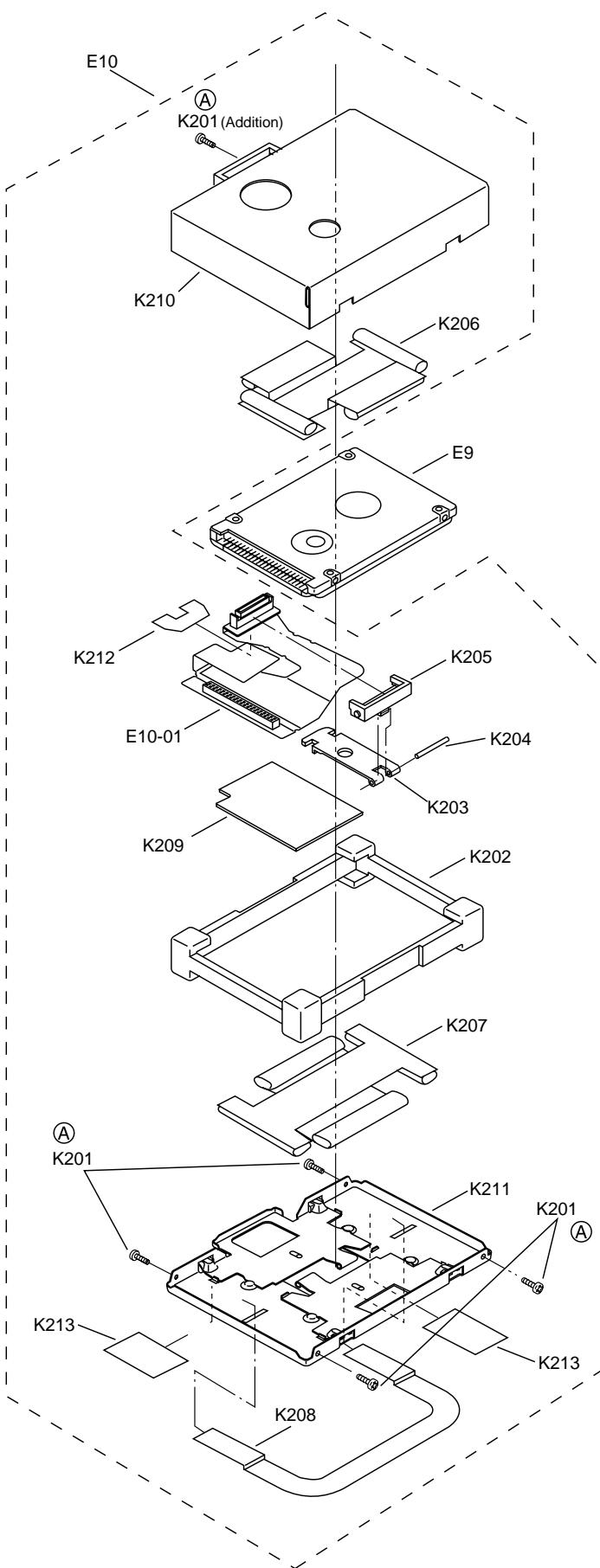
REF. NO and Area	PART NO		DESCRIPTION	Q'TY
	ORIGINAL	NEW		
MAIN BLOCK UNITS				
E11	DFWV80A0281	-	ASS'Y LCD FRONT CABINET / TOUCH SCREEN PANEL	1→0
MECHANICAL				
K201	DFHE5025XA		SCREW	4→5
K400	-	DFWV80A0284	ASS'Y LCD FRONT CABINET	0→1
K35	DFHR4074ZA	-	LOCK LEVER SPACER	1→0
K37	DFHE6013ZA	-	LOCK STOPPER ANGLE SPACER	1→0
K159	-	DFHM0235ZA	LOCK LEVER SPACER	0→1
K75	DFUQ0081ZA	DFUQ0086ZA	SPRING	2
K158	-	DFHE0470ZA	SPACER, TESTER FPC	0→1
K40	DFHR7659ZA	DFHR7938ZA	SHEET, WATERPROOF, MICROPHONE	1
K90	DFKF8134YA-0	DFKF8134XA-0	BOTTOM CABINET	1
K90-01	-	DFBD0146YA-0	LOCK KNOB, MP	0→1
K90-02	-	DFBE0011ZA-0	EJECT TAB, MP	0→1
K90-03	-	DFHM0234ZA	SHEET, MP TAB	0→1
K90-04	-	DFGX0279ZA-0	CORNER GUARD G	0→1
K90-05	-	DFGX0280ZA-0	CORNER GUARD H	0→1
K90-06	-	DXQT2+D25FZM	SCREW	0→4
K90-07	-	DFHR5848YA	MP EJECT	0→1
K90-08	-	DFHR5870ZA	MP EJECT GEAR	0→1
K90-09	-	DFHR3012ZA	SHEET, MP EJECT	0→1
K90-10	-	DFHR7937ZA	MP WATER PROOF SHEET	0→1
K90-11	-	XYN2+F4T	SCREW	0→2
K90-12	-	DFHR7972ZA	SHEET, MP SPRING	0→1
K90-13	-	DFKE0058ZA-0	LID, CONFIG	0→1
K90-14	-	DFKF0217YA-0	BOTTOM CABINET	0→1
K90-15	-	DFMD4030ZB	EJECTOR, MP	0→1
K90-16	-	DFUQ0061ZBT	MP LOCK SPRING	0→1
K90-17	-	DFUW0064YAT	MP EJECT SPRING	0→1
K90-18	-	DXQT2+H3FNLT	SCREW	0→3
K91	DFKM8140YA-0	DFKM8140XA-0	TOP CABINET	1
K91-01	-	DFBH1080YAT	HINGE	0→6
K91-02	-	DFGL0095ZA-0	IRDA PANEL	0→1
K91-03	-	DFGX0273ZA-0	CORNER GUARD A	0→1
K91-04	-	DFGX0274ZA-0	CORNER GUARD B	0→1
K91-05	-	DFGX0275ZA-0	CORNER GUARD C	0→1
K91-06	-	DFGX0276ZA-0	CORNER GUARD D	0→1
K91-07	-	DXQT2+D25NMT	SCREW	0→6
K91-08	-	DXQT2+D25FZM	SCREW	0→12
K91-09	-	DFHG1130ZAT	CUSHION	0→1
K91-10	-	DFHG1417XA	PACKING, MEDIA POCKET	0→1
K91-11	-	DFHG1418YA	PACKING, CARD SLOT	0→1
K91-12	-	DFHR5855ZA-0	LATCH, CARD SLOT LID	0→1
K91-13	-	DFHR5856ZA-0	LATCH, MEDIA POCKET LID	0→1
K91-14	-	DFHR5857ZA-0	LATCH, I/O LID	0→1
K91-15	-	DFHR7922YA	CUSHION	0→1
K91-16	-	DFHR7923YA	CUSHION	0→1
K91-17	-	DFKE0439ZAT0	SLIDE DOOR	0→1
K91-18	-	DFKE0577ZA-0	COMM PACK HOUSING R	0→1
K91-19	-	DFKE0580ZA-0	LID, I/O	0→1

REF. NO and Area	PART NO		DESCRIPTION	Q'TY
	ORIGINAL	NEW		
K91-20	-	DFKE0581ZA-0	LID, MEDIA POCKET	0→1
K91-21	-	DFKE0582ZA-0	LID, CARD SLOT	0→1
K91-22	-	DFKE0583ZA-0	COMM PACK HOUSING L	0→1
K91-23	-	DFKM0378YA-0	TOP CABINET	0→1
K91-24	-	DFMD2109ZBT	BACK ANGLE(CN)	0→1
K91-25	-	DFMD7751YA	PLATE, MEDIA POCKET	0→1
K91-26	-	DFMD7752ZA	PLATE, CARD SLOT	0→1
K91-27	-	DFUQ0082ZA	SPRING	0→2
K91-28	-	DFUQ0084YA	SPRING	0→1
K91-29	-	DXSB2+5FZMT	SCREW	0→6
K2	DFBE0010ZA-0	DFBE0010YA-0	RING, POWER SW	1
K6	DFGX0289ZA-0	DFGX0289YA-0	COVER, PALM TOP, MID	1
K16	DFHG1407ZA	DFHG1407YA	PACKING, WATERPROOF, RJ11	1
K22	DFHG1464ZA	DFHG1481ZA	PACKING, WATERPROOF, LCD CABLE	2→1
K32	DFHG815YA	DFHG815XA	PACKING, WATERPROOF, TOUCH PAD	1
K34	DFDG5523ZA	DFDG5523ZB	LOCK LEVER	1
K36	DFHR5853ZA	DFHR5853ZB	LOCK LEVER, HDD LID	1
K39	DFHR5862ZA-0	DFHR5862YA-0	LOCK GUIDE, R, HDD LID	1
K41	DFHR7939ZA	-	SHEET, SPEAKER NET	1→0
K43	DFHR7942YA	DFMX0939ZA	SHEET, RJ11	1
K44	DFHR7971ZA	-	SPACER, BATTERY	1→0
K47	DFKE0586ZA-0	DFKE0586YA-0	LID, HDD&BATTERY	1
K56	DFMD7744ZA	DFMD7744YA	ANGLE, MP FPC	1
K65	DFMX0383WA		SHEET, INSULATING	5→4
K66 	DFMX0772ZA		SHEET, INSULATING	2→1
K81	DFUV0068ZA	DFUV0068ZB	COVER, BOTTOM, PCMCIA	1
K89	DFHG1426YB	DFHG1426YC	DAMPER, LCD BACK	1
K90-19	-	DFHR7941ZA	CUSHION, CONFIG LID	0→1
K91-30	-	DFMX0937ZA	SHEET, WATERPROOF, TOP CABINET	0→5
K91-31	-	DFHR3028ZA	SPACER, PC LID	0→1
K91-32	-	DFHR3029ZA	SPACER, MP LID	0→1
K91-33	-	DFHR3032ZA	BOSS SPACER, MP&PC LID	0→4
K91-34	-	DFHG1490ZA	SPACER, UPPER, PC BAY	0→1
K91-35	-	DFHG1491ZA	SHEET, WATERPROOF, BOTTOM, PC BAY	0→1
K148	DFHR7981ZA	-	MP GUIDE SPACER A	3→0
K149	DFHR7982ZA	-	MP GUIDE SPACER B	2→0
K150	DFMD7778ZA	-	MP GUIDE ANGLE	1→0
K155	DFHR7979ZA	-	HINGE GUARD SHEET(MP)	1→0
K156	DFHR7980ZA	-	HINGE GUARD SHEET(PCMCIA)	1→0
K158	DFHE0470ZA	-	SPACER, TESTER FPC	1→0
K171	-	DFHR3039ZB	SHEET, WATERPROOF, BOTTOM, MP BAY	0→1
K172	-	DFMX0942ZA	SHEET, WATERPROOF, UPPER, MP BAY	0→1
K173	-	DFMX0943ZA	SHEET, WATERPROOF, UPPER, PC BAY	0→1
K174	-	DFHP7107ZA	SHEET, WATERPROOF, LED INDICATORS	0→1
K175	-	DFHR3027ZA	SHEET, WATERPROOF, T/PAD BUTTONS	0→1
K176	-	DFHR7583ZA	SPACER, HOLDER, LED LENS	0→1
K177	-	DFMX0938ZA	SPACER, T/PAD	0→1
K178	-	DFHR3030ZA	SHEET, WATERPROOF, SPEAKER NET	0→1
K179	-	DFHR3034ZA	SHEET, WATERPROOF, BOTTOM CABINET	0→1
K180	-	DFHR3037ZA	SHEET, WATERPROOF, BOTTOM CABINET	0→1
K181	-	DFHG1492ZA	SHEET, WATERPROOF, BOTTOM CABINET	0→1
K182	-	DFHE0241ZA	CUSHION, HDD&BATTERY LID	0→1
K183	-	DFHR3031ZA	SHEET, WATERPROOF, HDD&BATTERY LID	0→1
K184	-	DFHR3036ZA	CUSHION, HDD	0→2
K185	-	DFHR3042ZA	SPACER, HDD&BATTERY LID	0→2

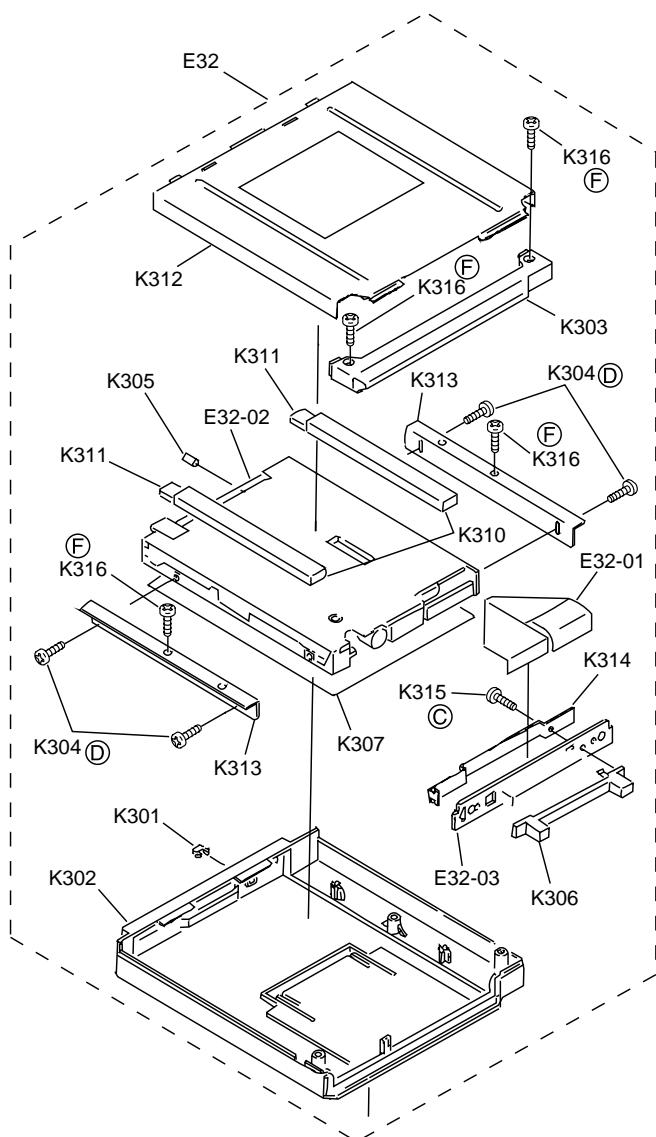
REF. NO and Area	PART NO		DESCRIPTION	Q'TY
	ORIGINAL	NEW		
K186	-	DFHG1493ZA	RUBBER, FOOT	0→2
K187	-	DFHR3033ZA	CUSHION, I/O PCB	0→2
K188	-	DFHR3038ZA	SHEET, WATERPROOF, TOP CABINET	0→1
K189	-	DFMD7784ZA	ANGLE, BATTERY PCB	0→1
K190	-	DFHR3013ZA	SPACER L	0→1
K191	-	DFHR3011ZA	SPACER, LOCK UNIT, BOTTOM CABINET	0→2
K192	-	DFHR3088ZA	SPACER, MP BAY, BOTTOM CABINET	0→1
K193	-	DFMX0947ZA	SPACER, LED LENS	0→1
K194	-	DFHR3089ZA	SPACER, MP BAY, TOP CABINET	0→1
K195	-	DFMX0946ZA	SHEET, PROTECTION	0→1
K196	-	DFMC0692ZA	SHEET, SHIELD, ELECTROMAGNETIC WAVE	0→1
K197	-	DFMX0784ZA	SHEET, INSULATING	0→1
K198	-	DFHR7990ZA	SPACER, MODEM CABLE	0→1
K210	DFMD2133YA	DFMD2133XA	HOLDER, HDD	1
K211	DFMD9071YA	DFMD9071XA	HDD COVER,	1
ELECTRICAL (MAIN PCB)				
C257	DCUC0J106KBY	DCUE1A106ZFL	CAPACITOR	1
JP6	-	ERJ3GEY0R00V	RESISTOR	0→1
R258	ERJ3GEYJ224V	ERJ3GEYJ104V	RESISTOR	1
R484	-	ERJ3GEYJ472V	RESISTOR	0→1

Exploded Views

HDD



FDD

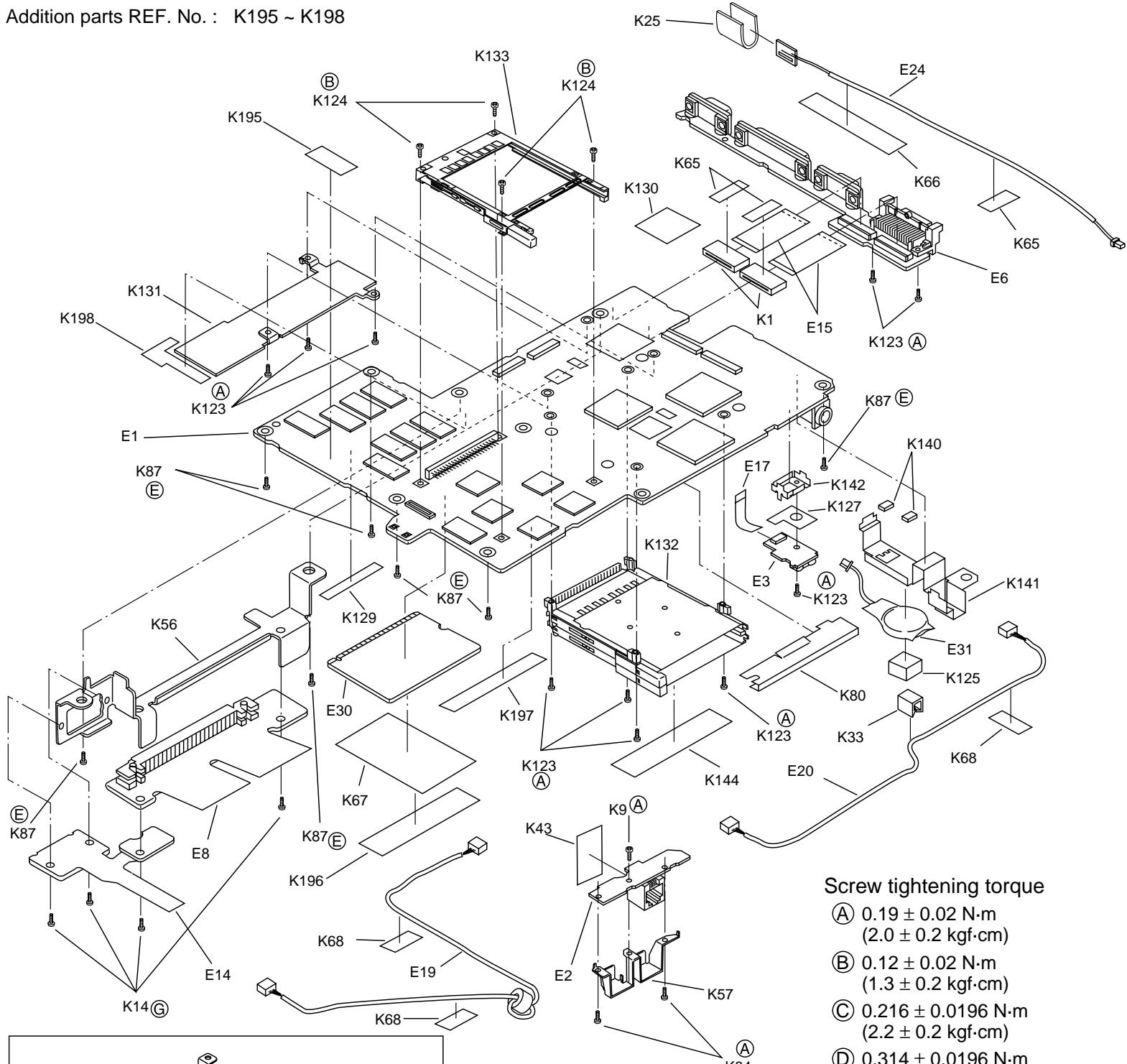


Screw tightening torque

- (A) $0.19 \pm 0.02 \text{ N}\cdot\text{m}$
 $(2.0 \pm 0.2 \text{ kgf}\cdot\text{cm})$
- (B) $0.12 \pm 0.02 \text{ N}\cdot\text{m}$
 $(1.3 \pm 0.2 \text{ kgf}\cdot\text{cm})$
- (C) $0.216 \pm 0.0196 \text{ N}\cdot\text{m}$
 $(2.2 \pm 0.2 \text{ kgf}\cdot\text{cm})$
- (D) $0.314 \pm 0.0196 \text{ N}\cdot\text{m}$
 $(3.2 \pm 0.2 \text{ kgf}\cdot\text{cm})$
- (E) $0.49 \pm 0.05 \text{ N}\cdot\text{m}$
 $(5.0 \pm 0.5 \text{ kgf}\cdot\text{cm})$
- (F) $0.441 \pm 0.049 \text{ N}\cdot\text{m}$
 $(4.5 \pm 0.5 \text{ kgf}\cdot\text{cm})$
- (G) $0.11 \pm 0.02 \text{ N}\cdot\text{m}$
 $(1.2 \pm 0.2 \text{ kgf}\cdot\text{cm})$

PCB

Addition parts REF. No. : K195 ~ K198



The part K158 is no more required as the part K56 is replaced from DFMD7744ZA to DFMD7744YA.

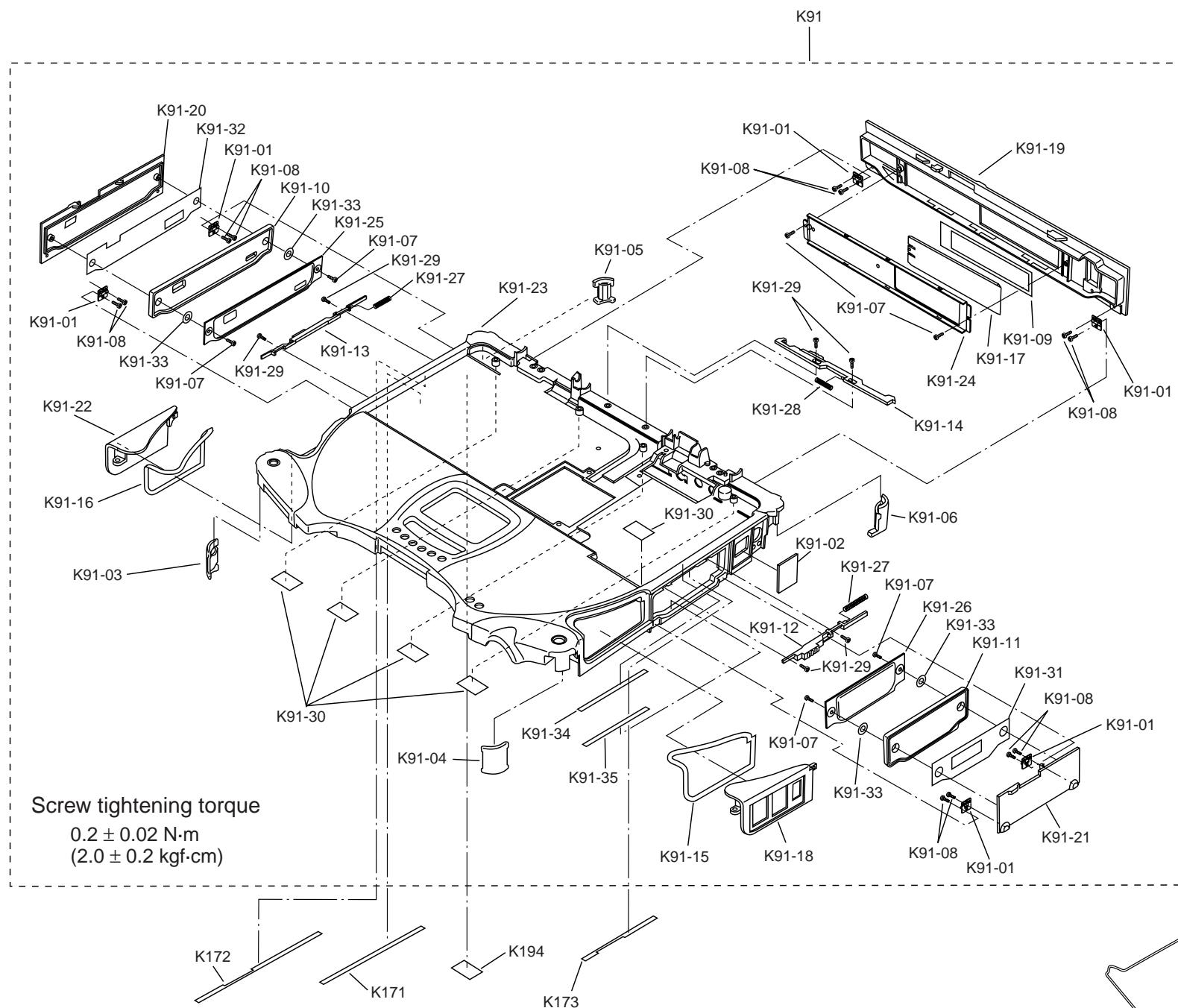
Screw tightening torque

- (A) 0.19 ± 0.02 N·m
 $(2.0 \pm 0.2$ kgf·cm)
- (B) 0.12 ± 0.02 N·m
 $(1.3 \pm 0.2$ kgf·cm)
- (C) 0.216 ± 0.0196 N·m
 $(2.2 \pm 0.2$ kgf·cm)
- (D) 0.314 ± 0.0196 N·m
 $(3.2 \pm 0.2$ kgf·cm)
- (E) 0.49 ± 0.05 N·m
 $(5.0 \pm 0.5$ kgf·cm)
- (F) 0.441 ± 0.049 N·m
 $(4.5 \pm 0.5$ kgf·cm)
- (G) 0.11 ± 0.02 N·m
 $(1.2 \pm 0.2$ kgf·cm)

TOP CABINET

Deletion parts REF. No. : K65

Addition parts REF. No. : K91-01 ~ K91-35, K171 ~ K177, K187, K188, K193, K194

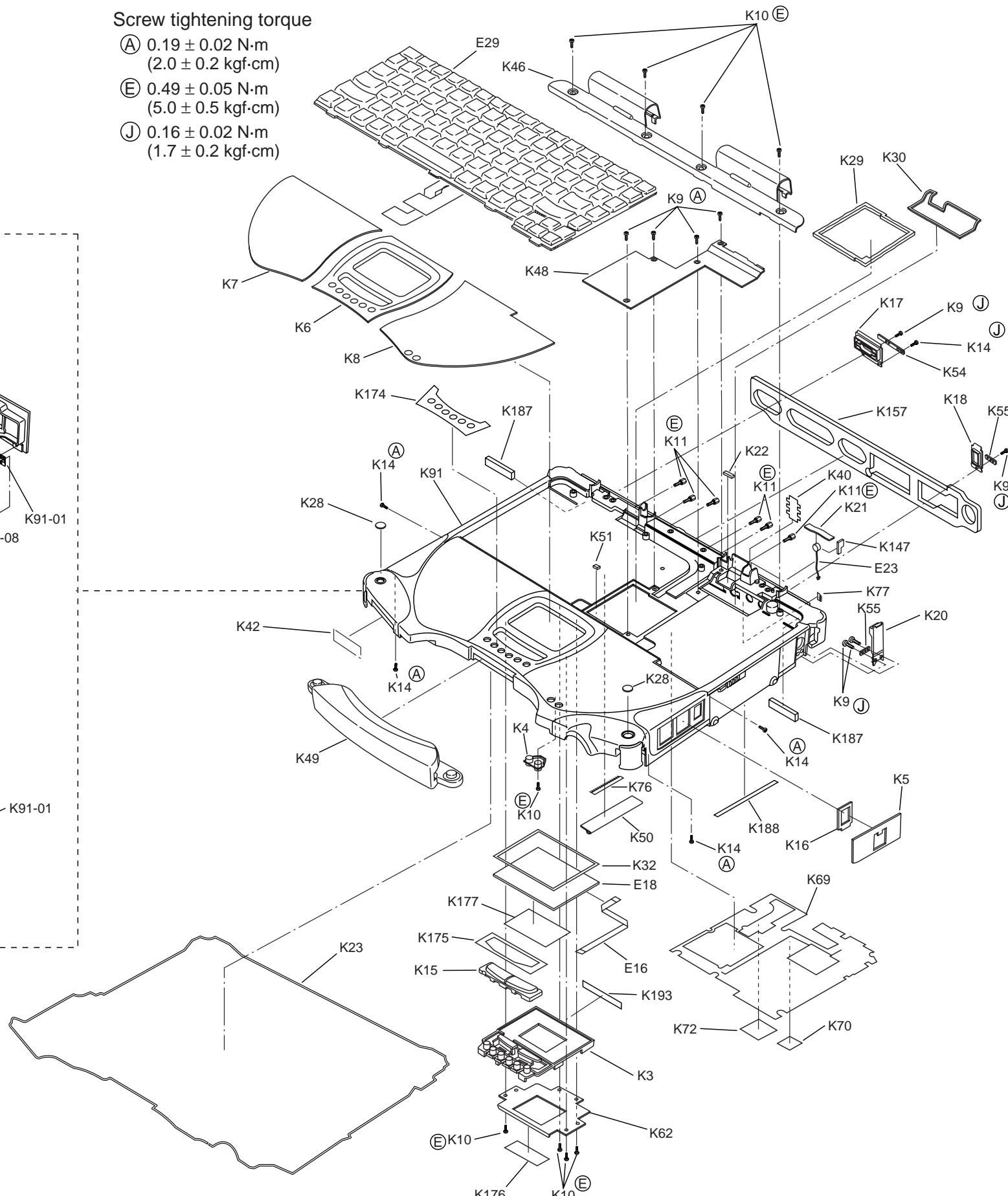


Screw tightening torque

Ⓐ $0.19 \pm 0.02 \text{ N}\cdot\text{m}$
 $(2.0 \pm 0.2 \text{ kgf}\cdot\text{cm})$

Ⓔ $0.49 \pm 0.05 \text{ N}\cdot\text{m}$
 $(5.0 \pm 0.5 \text{ kgf}\cdot\text{cm})$

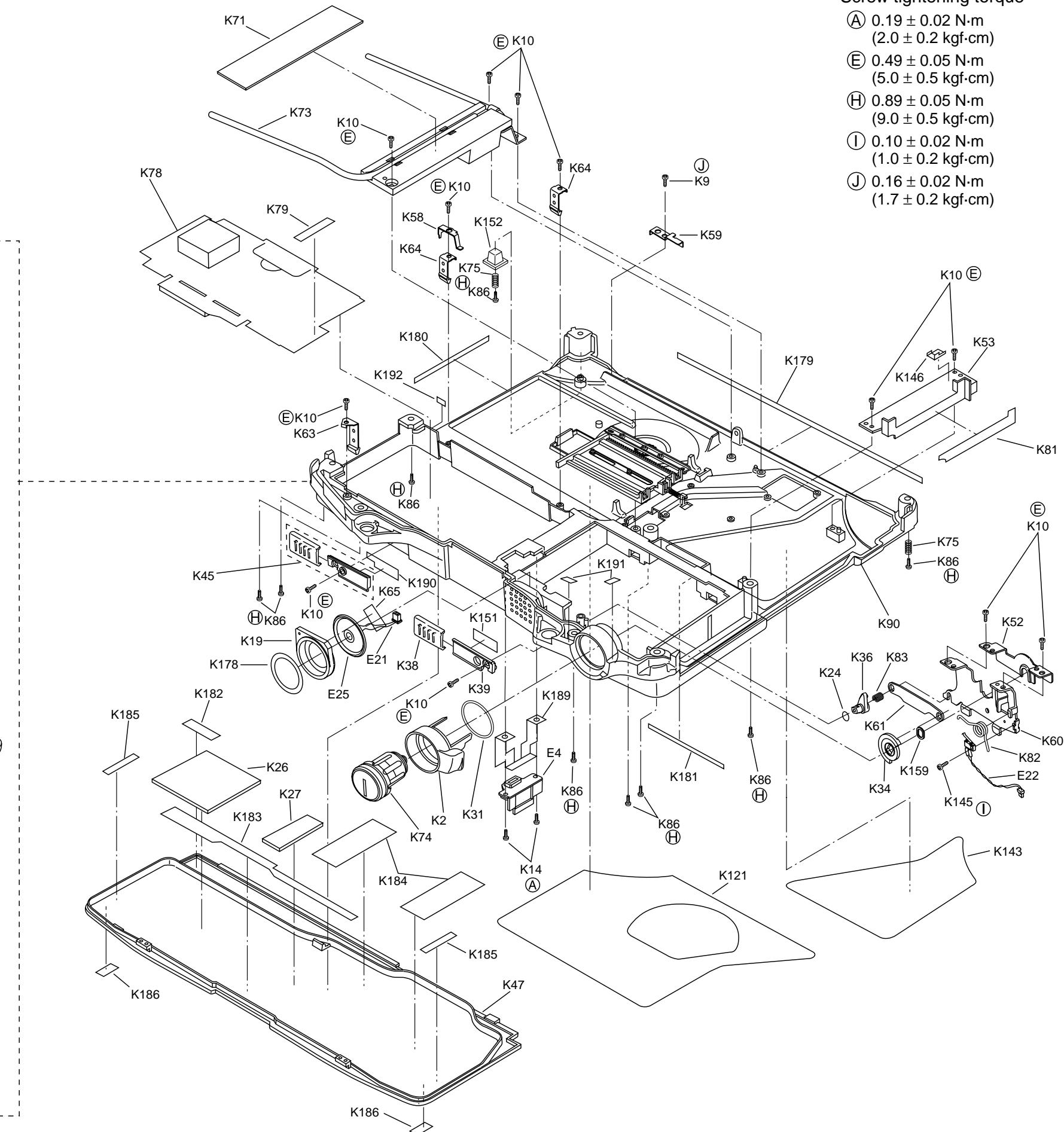
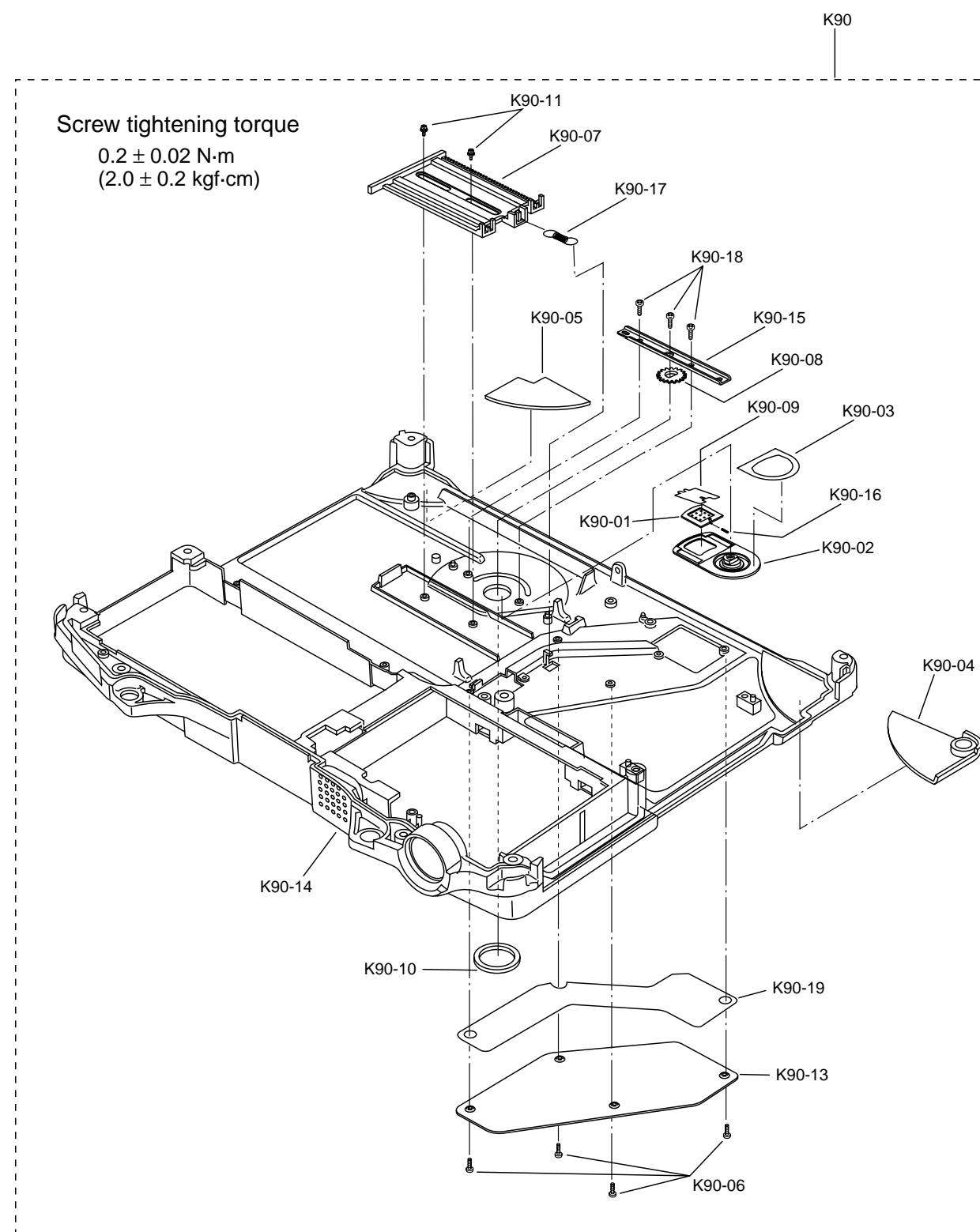
Ⓛ $0.16 \pm 0.02 \text{ N}\cdot\text{m}$
 $(1.7 \pm 0.2 \text{ kgf}\cdot\text{cm})$



BOTTOM CABINET

Deletion parts REF. No. : K35, K37, K41, K44, K148 ~ K150

Addition parts REF. No. : K90-01 ~ K90-19, K159, K178 ~ K186, K189 ~ K192



Screw tightening torque

- (A) 0.19 ± 0.02 N·m
 $(2.0 \pm 0.2$ kgf·cm)
- (E) 0.49 ± 0.05 N·m
 $(5.0 \pm 0.5$ kgf·cm)
- (H) 0.89 ± 0.05 N·m
 $(9.0 \pm 0.5$ kgf·cm)
- (I) 0.10 ± 0.02 N·m
 $(1.0 \pm 0.2$ kgf·cm)
- (J) 0.16 ± 0.02 N·m
 $(1.7 \pm 0.2$ kgf·cm)

LCD

Deletion parts REF. No. : E11

Addition parts REF. No. : K400

Screw tightening torque

(K) 0.55 ± 0.051 N·m
(5.5 ± 0.5 kgf·cm)

